IN THE CLAIMS:

1. (Previously presented) A wine quality sensor, comprising:

a sensor package having at least one sensor comprising at least one sensor element for sensing data indicative of wine quality, wherein said at least one sensor is operatively located within a sealed wine container, wherein said at least one sensor directly contacts wine or wine vapor within said sealed wine container; and

means for measuring and quantifying said data, wherein said data comprises an absorption spectrum of the wine, wherein said at least one sensor element comprises means for measuring said absorption spectrum of the wine.

2. (canceled)

3. (Previously presented) The wine quality sensor of claim 1, wherein said sensor package is configured for integration into a wine bottle.

4. (original) The wine quality sensor of claim 1, wherein said means for measuring and quantifying said data comprises a measuring package.

5. (Previously presented) The wine quality sensor of claim 3, wherein said wine bottle is formed of glass, wherein said bottle may be sealed with a seal

after it is filled with wine, wherein said sensor package is integrated with a sensor integration configuration selected from the group consisting of (i) integration of said sensor package within said glass, (ii) integration of said sensor package within said seal and (iii) integration of said sensor package between said seal and said glass.

6. (original) The wine quality sensor of claim 5, wherein said seal is selected from the group consisting of a cork, plastics, rubbers, resins, waxes, cellulose, cellulose derivatives, synthetic organic compounds, silicones, silicone derivatives, epoxies and glues.

7. (original) The wine quality sensor of claim 1, wherein said data is selected from the group consisting of alcohol, sugar, pH, dissolved oxygen, an optical transmission spectrum, an optical fluorescence spectrum, an optical scattering coefficient, SO_2, and phenol.

8. (original) The wine quality sensor of claim 4, wherein said measuring package comprises means for displaying said at least one wine quality value.

9. (original) The wine quality sensor of claim 8, wherein the displaying means comprises an LCD display.

10. (original) The wine quality sensor of claim 8, wherein said measuring package is configured for portable handheld operation.

11. (original) The wine quality sensor of claim 3, wherein said wine bottle is formed of glass, wherein said at least one sensor is fused or bonded to said glass.

12. (original) The wine quality sensor of claim 11, wherein said bottle comprises a hole that allows said at least one sensor to contact wine contained within said bottle.

13. (original) The wine quality sensor of claim 2, wherein said at least one sensor is selected from the group consisting of an electrochemical sensor, an optical chemical sensor and a liquid phase chemical sensor.

14. (canceled)

15. (Previously presented) The wine quality sensor of claim 1, wherein said at least one sensor element comprises a polymer coating.

16. (canceled)

17. (Previously presented) The wine quality sensor of claim 1, wherein said means for measuring said absorption spectrum comprises a light path that traverses the wine.

18. (original) The wine quality sensor of claim 17, wherein said light path is formed with a light source input fiber optic and an output fiber optic operatively positioned to collect a portion of the light from said light source input fiber.

19. (original) The wine quality sensor of claim 18, further comprising an input reflector and an output reflector both fixedly and operatively connected to said sensor package, wherein light from said light source input fiber will reflect from said input reflector to then traverse said light path and then be reflected from said output reflector into said output fiber optic.

20. (original) The wine quality sensor of claim 19, wherein either or both of said input reflector and said output reflector comprises a corner cube.

21. (original) The wine quality sensor of claim 20, further comprising means for improving the light coupling between said light source input fiber optic and said output fiber optic.

22. (original) The wine quality sensor of claim 21, wherein said means for improving the light coupling are selected from the group consisting of a GRIN lens and a positive lens.

23. (original) The wine quality sensor of claim 17, further comprising means for measuring scattered light.

24. (Previously presented) The wine quality sensor of claim 1, wherein said means for measuring said data comprises a microprocessor that reads said at least one sensor.

25. (Currently amended) A wine quality sensor, comprising:

a sensor package having at least one sensor comprising at least one sensor element for sensing data indicative of wine quality, wherein said ~~means for sensing data include~~ at least one sensor element is operatively located within a sealed wine container, wherein said at least one sensor element directly contacts wine or wine vapor within said sealed wine container, wherein said at least one sensor element comprises means for measuring data selected from the group consisting of an absorption spectrum of the wine and scattered light;

a measuring package for measuring and quantifying said data, wherein said measuring package comprises:

at least one light source to provide light to said sensor package;

at least one fiber optic for transmitting light from said at least one light source to said sensor package and for receiving light from said sensor package;

at least one detector for detecting said light;

means for providing power to said at least one sensor;

an LCD display to display menus and said data; and

a microprocessor to control said wine quality sensor; and

a housing that fits around and encloses said measuring package.

26. (original) The wine quality sensor of claim 25, wherein said at least one light source comprises a broadband light source.

27. (original) The wine quality sensor of claim 25, wherein said at least one detector ~~is selected from the group consisting of~~ comprises a linear CCD coupled to a grating spectrometer ~~and a filtered optical diode to enable the fluorescence and/or absorption spectrum of the wine to be measured over a wavelength region extending from 300-1300 nm and a set of individual filtered optical diodes that measure fluorescence and/or absorption characteristics at discreet wavelengths~~.

28. (original) The wine quality sensor of claim 25, wherein said powering means comprises a battery.

29. (original) The wine quality sensor of claim 25, wherein said microprocessor includes an analog to digital converter selected from the group consisting of an integrated analog to digital converter and a separate analog to digital converter IC.

30. (original) The integrated wine quality sensor of claim 25, further comprising an external computer, further comprising means for connecting said microprocessor to said external computer, wherein said data can be downloaded into said external computer where it can be stored for future comparison.

31. (Previously presented) The wine quality sensor of claim 25, wherein said sensor package comprises a cover selected from the group consisting of a hinged cover and a cap, wherein said cover protects said sensor package.

32. (original) The wine quality sensor of claim 31, wherein said cover includes a sensor number for identification of said sensor and for obtaining calibration data.

33. (Previously presented) The wine quality sensor of claim 25, wherein said data is selected from the group consisting of galacturonic acid, gums; tartaric acid, malic acid, citric acid, succinic acid, lactic acid, acetic acid, potassium bitartrate, formic, Yair Margalit, Pacid, oxalic acid, pyruvic acid, butyric acid, iso-butyric acid, hexanoic acid, octanoic acid, a-Ketoglutaric acid, ethanol, methanol, methyl ester, n-propanol, isopropanol, n-butanol, isobutanol, n-amyl alcohol, 3-methylbutanol, 2-methylbutanol, n-hexanol, 2-phenylethanol, polyalcohols (polyols), 2,3-butandiol, glycerol, eythritol, xylitol, arabitol (also called arabinitol), mannitol, acetaldehyde, acetoin and diacetyl, acetate, butyrate, oxanoate and other esters, ethyl acetate, ethyl formate, propyl acetate, isopropyl acetate, isobutyl acetate, isoamyl acetate, phenylethyl acetate, ethyl propionate, ethyl valerate, ethyl hexanoate (caproate), ethyl octanoate (caprylate), ethyl decanoate (caprate), ethyl lactate, ethyl succinate (acidic ester), methyl o-anthranilate, amino acids, diammonium phosphate, proteins, nitrates, amino acid esters, vitamins, biotin, choline, gallic acid, coutaric acid, caftaric acid, fertaric acid, catechin, epicatechin, gallocatechin gallate, procyanidin, catechin catechin gallate, hydroxycinnamic acid esters, acids, glutathionyl caftaric acid, catechin+epicatechin, catechin-gallate, afzelechin, catechin, epicatechin, and gallocatechin, flavane (3,4) diol, flavonol-3, cyanindin, delphinidin, peonidin, petunidin, mallvidin, anthocyanins, glycosic, catechin, epicatechin, potassium, sodium, calcium, iron, lithium, magnesium, copper, lead, manganese, aluminum, zinc, rubidium, arsenic, nickel, anions, phosphate, sulfate, borates, silicates,

halogens, fatty acids, boron, florine, silicon, phosphate, sulfate, chlorine, bromine, iodine, anions, sulfur dioxide, acetaldehyde-bisulfite (bound SO2), fumaric acid, vinylbenzene, benzaldehyde, γ-nonalactone, ethyl phenylacetate, p-hydroxybenzoic acid, p-pyrocatechuic acid, gallic acid, vanillic acid,syringic acid, salicyclic acid, o-pyrocatechuic acid, gentisic acid, cinnamic acid, cinnamic acid, p-coumaric acid, caffeic acid, ferulic acid, sinaptic acid, coutaric acid, caftaric acid, fertaric acid, digallic acid, ellagic acid, flavonoids, afzelechin, catechin, gallocatechin, glycosides, tannins, flavylium ion, anthocyanins, pelargonidin, cyanidin, delphinidin, peonidin, petunidin, mallvidin, ethyl acetate, ethyl caproate, terpenoids, glycosides, pyrazines, phenolics, chlorogenic acid, methyl anthranilate, ethyl anthranilate, methyl salicylate, ethyl salicylate, 2-methoxymethyl benzoate, 2 methoxyethyl benzoate, ethyl trans-2 –butenoate, ethyl trans-2-hexenoate, ethyl trans-2-octenoate, ethyl trans-2-decenoate, ethyl trans, trans-2,4 decadienoate, ethyl trans, cis-2,4 decadienoate, ethyl trans, trans, cis-2,4,7-decatrienoate, ethyl trans, cis-2,6-dodecadienoate, methyl 3-hydroxybutanoate, dehyl 3-hydroxybutanoate, ethyl 3-hydroxyhexanoate, damascenone, furaneol, methoxyfuraneol, ethyl 3-mercaptopropanoate, trans-2-hexen-1-ol, hydrogen disulfide, carbon disulfide, dimethyl disulfide, dimethyl sulfide, diethyl sulfide, diethyl disulfide, methanethiol, ethanethiol, dimethyl sulfoxide, methyl thiolacetate, ethyl thiolacetate, cis and trans-2-methylthiophan-3-ol, 5-[hydroxyethyl]-4-methylthiazole, thio aliphatic alcohols, methanionol, or 3-(methylthio)-propanol, polyphenoloxidases, laccase, chlorogenic acid,

protocatechuic acid, glutathione,, 2-S-glutathionylcaftaric acid, acetaldehyde, 13C-Norisoprenoids,1,1,6-trimethyl-1,2-dihydronaphthalene (TDN), vitispirane, ellagic acid, lignins, gallic acid, aromatic aldehydes, vanillin, syringaldehyde, coniferyaldehyde, sinapaldehyde, γlactones, cis-β-methyl-γ-lactone, trans-β-methyl-γ-lactone, maltol, cyclotene, ethoxylactone, furfural, furfuryl alcohol, Guaiacol, geosmin, anthocyanine-bisulfite, malvidin glucoside,quinones, tartaric acid, potassium bitartrate, calcium tartrate, furmaric acid, calcium carbonate, sorbic acid, ethyl sorbate, benzoic acid and sodium benzoate, diethyl dicarbonate (DEDC), dimethyl dicarbonate (DMDC), iron, copper, aluminum, hydrogen sulfide, mercaptan, diethyl sulfide, ethyl mercaptan, (1)pH, diacetyl, acetoin, 2,3-butandiol, 2-ethoxyhexa-3.5-diene, histamine, tyramine, putrescine, cadaverine, ethyl carbamate, urea and carbamyl phosphate.

34. (Previously presented) A method for measuring wine quality, comprising:

sensing data indicative of wine quality, wherein the step of sensing data is carried out with means for sensing data , wherein said means for sensing data include at least one sensor operatively located within a sealed wine container, wherein said at least one sensor directly contacts wine or wine vapor within said sealed wine container, wherein the step of sensing data includes sensing an absorption spectrum of the wine; and

measuring and quantifying said data.

35. (canceled)

36. (original) The method of claim 34, further comprising displaying said data.

37. (canceled)

38. (original) The method of claim 34, wherein the step of sensing data includes sensing data with at least one sensor that comprises a polymer coating.

39. (canceled)

40. (Previously presented) A method for measuring wine quality, comprising:

sensing data indicative of wine quality, wherein the step of sensing data is carried out with means for sensing data , wherein said means for sensing data include at least one sensor operatively located within a sealed wine container, wherein said at least one sensor directly contacts wine or wine vapor within said sealed wine container, wherein the step of sensing data includes measuring scattered light; and

measuring and quantifying said data.

41. (Previously presented) The method of claim 40, further comprising downloading said data to an external computer.

42-47. (canceled)

48. (New) An apparatus, comprising:

at least one sensor element for sensing data indicative of a wine characteristic, wherein said at least one sensor element is operatively located within a sealed wine container or within a wine cork, wherein said at least one sensor element directly contacts wine or wine vapor within said sealed wine container or within said cork; and

means for measuring and quantifying said data.

49. (New) A method, comprising:

sensing, with at least one sensor element, data indicative of a wine characteristic, wherein said at least one sensor element is operatively located within a sealed wine container or within a wine cork, wherein said at least one sensor element directly contacts wine or wine vapor within said sealed wine container or within said cork; and

measuring and quantifying said data.